

CLAIMS

What is claimed is:

1. A channel estimation method for wireless local area network (WLAN) systems, which comprises the steps of:

- 5 (a) receiving a preamble message of a spread spectrum that contains a series and spreading the preamble message into a plurality of symbol signals, each of the symbol signals containing a plurality of discrete signals;
- (b) determining a peak sign assignment for each of the symbol signals;
- (c) establishing a plurality of data windows for each symbol signal using the
10 discrete signal of any starting point;
- (d) multiplying a discrete value associated with each of the discrete signals of each data window by the peak sign assignment associated with the data window, and accumulating and temporarily storing the product to a first data frame;
- 15 (e) repeating step (d) for each of the following discrete signals, accumulating and temporarily storing the results to a second data frame, a third data frame, ..., and the Nth data frame;
- (f) computing the accumulated values in the data frames and determining a data frame with the maximum; and
- 20 (g) computing a channel signal according to the data frame with the maximum.

2. The method of claim 1, wherein each symbol signal contains two orthogonal modulated components (Corr_I, Corr_Q).

3. A channel estimation method for wireless local area network (WLAN) systems,

which comprises the steps of:

- (a) receiving a preamble message of a spread spectrum that contains a series and dispreading the preamble message into a plurality of symbol signals, each of the symbol signals containing a plurality of discrete signals;
- 5 (b) determining a peak sign assignment for each of the symbol signals;
- (c) establishing a plurality of data windows for each symbol signal using the discrete signal of any starting point;
- (d) multiplying a discrete value associated with each of the discrete signals of each data window by the peak sign assignment associated with the data
10 window, and accumulating and temporarily storing the product to a first data frame;
- (e) repeating step (d) for each of the following discrete signals, removing repeated operations in each accumulation by equating the result to the previously computed one, accumulating and temporarily storing the results to a
15 second data frame, a third data frame, ..., and the Nth data frame;
- (f) computing the accumulated values in the data frames and determining a data frame with the maximum; and
- (g) computing a channel signal according to the data frame with the maximum.

4. The method of claim 3, wherein each symbol signal contains two orthogonal
20 modulated components (Corr_I, Corr_Q).

5. A channel estimation system for wireless local area network (WLAN) systems, which comprises:

a despreader, which receives a preamble message of a spread spectrum that

contains a series and dispreads the preamble message into a plurality of symbol signals, each of the symbol signals containing a plurality of discrete signals;

a peak detector, which determines a peak sign assignment for each of the symbol signals;

5 a data window operating unit, which multiplies a discrete value associated with each of the discrete signals of each data window by the peak sign assignment associated with the data window and accumulates and temporarily stores the product to a first data frame; and

10 a data frame operating unit, which sends each of the following discrete signals to the data window operating unit, accumulates and temporarily stores the results to a second data frame, a third data frame, ..., and the Nth data frame;

wherein the accumulated values in the data frames are computed to determine a data frame with the maximum according to which a channel signal is computed.

15 6. The system of claim 5, wherein each symbol signal contains two orthogonal modulated components (Corr_I, Corr_Q).

7. The system of claim 5 further comprising a divider to process divisions according to the preamble message.

20 8. The system of claim 7, wherein the signals after division processing are used to estimate the channel signal according to a predetermined channel impulse response.